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PUBLIC MEETING

PROPOSED PLAN TO REDUCE CONTAMINATION NEAR THE INJECTION WELL AND SURROUNDING GROUNDWATER AT TEST AREA NORTH

February 6, 1992

7:55 p.m.

Burley Inn

Burley, Idaho

Meeting Panel:

MS. LISA GREEN, DOE-Idaho, Moderator

MR. HOWARD BLOOD, U.S. EPA

MR. RON LANE. Idaho Department of Health and Welfare

MR. JERRY ZIMMERLE, EG&G

MR. DAN HARELSON, DOE-Idaho

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MS. GREEN: Before we get started on the TAN -- the subject of the TAN interim action, I guess I'd like to explain just a little bit about why we have broken out the question and answer period versus the public comment period. There was a method to our approach.

The question and answer period was to provide people the opportunity to get -- to clarify things they didn't understand about the project before they make their official comments so that they can provide a more informed comment, better contribute to the final decision.

One of the main reasons why we don't just automatically include the question and answer into the formal comment is that it's not always clear from listening to a question what a person's comment would be. A question can -- You can interpret what the comment would be several different ways, oftentimes.

So we want -- we have set up a specific comment period so that the public can specifically state what their comment is, and it limits the latitude for interpretation by DOE, EPA and the state as to what that comment is.

With that, the next topic for discussion is the proposed plan for an interim action to reduce

the contamination near the injection well and in the surrounding groundwater at the Test Area North. We will continue to follow the same approach.

I'd like to introduce Ron Lane to my immediate right, a new panel member. He works for the Division of Environmental Quality. He's an environmental hydrogeologist, and he's also the project manager for the state on all of the cleanup activities at the Test Area North.

To my left, we have a new series of panel members on the table to the left. Jerry Zimmerle is to the far left in the blue shirt. Jerry is the contractor project manager for all of the environmental restoration activities in Test Area North. Jerry will be giving this next presentation.

On his right is Dan Harelson. Dan works for the Department of Energy, and he is the corresponding project manager for cleanup activities at TAN for the Department of Energy.

With that, I will turn over the floor and the mike to Jerry.

MR. ZIMMERLE: Thank you, Lisa. As Lisa said, my name is Jerry Zimmerle, and I am the project manager for the interim action on the injection well at the Test Area North.

Before I get started, I'd like to thank you all for coming here this evening. I appreciate the time and effort it takes. I have already had some excellent discussions with a few of you so far. I hope we get a little bit more feedback and some comments.

Tonight what I am going to do is give you essentially a visual presentation of our proposed plan, I will give a little bit different look of what I want to do and also give you a chance to feedback and give us some comments so you know what we are doing and also we know what you'd like us to do.

The Test Area North is located in the northern portion of the Idaho National Engineering Laboratory. It's about 15 miles west of Terreton and Mud Lake. One of the first things I wanted to know when I got involved with this project is how big is the problem, how far has its contamination spread from the injection well.

And as you can see, it's still pretty much within the boundaries of the Test Area North. It's moving roughly into the southeast in the general direction of groundwater flow at TAN; but over time, what will happen is it will begin to bend to the southwest and follow groundwater flow to the

southwest in the direction of the Snake Water Plain Aquifer.

What I want to do is give you a little bit more background about this contamination plume itself so you can see how we decided where the plume is and what type of contamination levels we have.

The Test Area North consists of four major facilities. What we are primarily interested in is this facility in the center, the Technical Support Facility. It is from here that the wastewaters that went into the injection well were generated.

The injection well itself is in the southwestern corner of the Technical Support Facility. It was used from about 1955 to 1972 for different types of wastewaters that contained organics, metals and radionuclides.

As you can see in the 37 or so years since the well was used, the contamination plume has moved about a mile and a half to the southeast, and it's about a mile and a half wide.

We have defined the plume boundary with a number of different monitoring wells on the edges of the plume down to the different areas. There are two things we want to do with this contamination plume.

The first thing is what we are talking

about this evening, the interim action. We want to go in and we want to look at this higher level of contamination within a quarter mile to a half mile of the injection well. We want to start reducing the levels of this contamination.

The second thing we are proposing to do is to look at a Remedial Investigation/Feasibility Study that will look at the entire contamination plume. And this is going to be discussed in greater detail later on this evening by Mr. Dan Harelson of the Department of Energy.

Now that I have given you an idea of what the horizontal picture of what this plume is, what I'd like to do is give you an idea of what's happening underneath the surface by looking at what the surface looks like from these injection wells down to the southeast.

The injection well itself is a 12-inch diameter well. It goes down about 300 feet into the aquifer, and it's the same type of well a farmer would use to pull water out to irrigate the fields. Except in this case, water was put down and allowed to go into the aquifer, into the groundwater.

The water table at TAN is roughly at about 200 feet, so what we have is 100 feet of pipe

that extends into that water, and most of this pipe has little slots or openings that lets the wastewater move out.

We put in a number of different monitoring wells in the area, and what we find is that most of this contamination is still within the rough quarter mile to half mile boundary near the injection well. When you get about a mile away, the contamination levels drop by as much as much as 20 times less than what's in the injection well itself.

While the well was in use, different types of wastewaters went into the groundwater. They contained these different organics, metals and radionuclides, and these different contaminants are going to be examined under the remedial investigation when we do that study.

In the interim action, what we decided to do was to focus in on four contaminants that had the highest levels of concentration in the water and also exceeded drinking water standards. In this case, these are strontium, which is a radionuclide. Lead, which is a metal. Tetrachloroethylene and trichlotoethylene which are both organic contaminants.

For each of these contaminants, what we

are showing you is an outer boundary, which is the drinking water standard, and an inner boundary, which is the higher levels of contamination we will find near the injection well.

One key thing that leads us to propose at the interim action stage near the injection well is that three of these contaminants are within that quarter mile to half mile boundary, so we can go after those contaminants and bring them back up and remove them from the water.

Also, we have the higher levels of contaminants for all these -- or high level, higher concentrations of contaminants for all of these within this quarter mile boundary.

Now, the purpose of this interim action -- I think there's a clear reason why we want to do this interim action. We do have contaminants in the groundwater that exceed drinking water standards, and we need to do something to start containing those contaminants so that we prevent future degradation of the aquifer.

We want to do that by getting into the groundwater and reducing its contaminant levels. As a secondary benefit, what we will end up with is a chance to reduce the complexity and the cost of any

final remedy we select under the remedial investigation.

As an example of this, if we can bring the lead and strontium levels down to some reasonable amount, the remedial investigation can focus in on the organic portion that's still in the water, making for a simpler final remedy.

Both the interim action and the remedial investigation study will continue for about the next two and a half to three years. They are going to be going side by side, or parallel. What we are planning to do is as this interim action gathers data on the aquifer, we are going to feed it down into the remedial investigation. That allows us to improve our decision making process and select a better alternative.

We looked at a number of different alternatives for this interim action. What we are proposing are these four alternatives.

Alternative number 1 is the no action alternative where we allow the contaminants to continue to move out into the groundwater. Alternatives 2 through 4 all use similar technologies but would pump water out of the ground and treat it to remove contamination. The primary difference

between these three alternatives is in how we treat the organic contamination.

What I am going to do is go into a little bit more detail on these three alternatives in the next three minutes. Before I do that, I wanted to show you how we use the nine CERCLA criteria on the proposed plan to help get to our preferred alternative, which is air stripping and carbon adsorption.

As we were discussing the first presentation this evening, these criteria broke down into threshhold, balancing and modifying. And the threshhold criteria are the protection of human health and conformance with legal requirements that you have to meet.

In this case, no action, because it doesn't go out and reduce these levels of contamination, is not an acceptable alternative. Or we feel it is not an acceptable alternative. Where the other three all are -- all meet these threshold criteria.

I'd like to give you an idea of what we are planning to do. What we want to do is build on what has already been done in the past. Back in January of 1990 at the injection well, there was 55

feet of sludge in the bottom of the injection well. We pulled that out and put it into drums for disposal.

Then we went in and flushed the well itself, started to pull some of the contamination from just around the well casing, brought it back up to the surface, also for disposal. Now what we want to do is a pump test on the injection well.

What this will do will give us some information on how much contamination is still around the injection well that we might have to deal with under a longer term interim action. And this longer term interim action could continue for up to two years where we continually pump from the injection well to remove the contaminants from groundwater.

In addition to working on the injection well, we want to go to these other wells that are in the immediate vicinity and pull contamination out of those, also. Again, with our overall goal of reducing contamination within this broad area that's marked on that figure.

All the water we treat from this interim action is going to go on into this existing disposal pond where it will be allowed to naturally percolate down through the soil or back right into the

atmosphere.

Now, the three alternatives that we are considering through the interim action will have common features. They start off by taking the water from the ground with the contaminants, and with also solid particles such as sands or grits.

What we want to do is send that through a prefilter, which would be either a tank where we let the sand and grit settle out, or something like an oil filter on your car where the solids would be captured and then the water would continue on into this treatment system. Which is where we remove the organic contaminants from the water.

I will go into a little bit more detail on the different types of organic treatment systems we are considering or proposing. But first of all, let me finish the rest of the treatment process. The groundwater which will now have lead and strontium in it will go into this ion exchange column.

An ion exchange system is essentially a big column filled with little beads that act just like a water softener in your home. The atoms of lead and strontium will be removed from the water, replaced with atoms of sodium or hydrogen.

What we end up with is treated water that

can go into the disposal pond. The beads over time will be -- will capture the strontium particles out of the water. They will become a radioactive waste that we will have to dispose of. We haven't determined where this waste will go yet. That will be decided under the record of decision.

And alternative 2 is our preferred alternative. In this case, what we want to do is take the water from the prefilter and run it through an air stripping column. In this case, the air stripper is a large column filled with plastic rings. We put the water in at the top, let it spread out over the rings and go into thinner and thinner layers.

By taking air and passing it in the opposite direction, what happens is that the organics just by their chemical nature want to move from the water into the air. We end up with an airstream that's full of the organics that will then go through a carbon adsorption system.

In this case, we will have the reverse process. The organics will move from the air into the solid carbon particles, allowing us to discharge the air into the atmosphere. This carbon will be a hazardous waste.

What we are looking at doing is sending that to an EPA approved disposal facility. We are hoping we can get it recycled and sent back and we can can reuse it in our process.

There are two reasons we like this alternative. The first one is it separates out the hazardous and radioactive components in the groundwater. Now, this helps us meet some waste minimization goals, and also makes the waste easier to handle.

The second thing is air stripping technology is a proven technology. It's widely used across the country. It's simple to design, simple to operate. So we feel that this alternative meets the criteria we'd like to implement in the interim action.

In alternative 3, we do something a little bit different. The air stripping column is gone and we just bring the carbon adsorption system down and have it treat the water directly. In this case, the organics are still removed by the carbon; but we also get some of the lead and strontium that come out.

In this case, we end up with a mixed waste, which is a combination of the hazardous or

radiological contamination. This carbon is a more difficult material to get rid of as a waste, so we prefer not to have to deal with this in our interim action.

And even -- this is why this alternative was not selected as the preferred alternative, why we did not propose it as the preferred alternative even though it's a fairly simple system to design and operate.

Now, in alternative 4, we do something a little bit different. In this case, we use the ultraviolet light combined with chemicals that, combined together, attack the organic compounds, break them down into their component parts; water, carbon dioxide, salt. We come up with some obvious advantages. We don't produce either a mixed waste or hazardous waste here.

But this technology is also more difficult to operate. It's more difficult to design. It's not as proven a technology as an air stripper system. For this reason, we felt that it was not as good an alternative as alternative 2.

Now what I'd like to do is go back into the CERCLA decision process and show you how we use the balancing criteria to help us propose alternative

2 as our preferred alternative.

The first thing we started off with was the waste issue. Alternatives 2 and 4 avoid producing a mixed waste, so it's an easier solution to deal with. We felt that both of these were then our best options compared to alternative 3, which does produce a waste which is more difficult to dispose of.

Next we went into design or implementability of the alternatives. Alternatives 2 and 3 are fairly simple systems to operate and to design, so we felt that these would be a better alternative than number 4. Then we went to into long term operation and also short term; and in this case alternative 2, a simpler operation, there's less waste we have to handle, we felt this would be better than both alternatives 3 and 4.

By combining these four criteria, we decided that alternative 2 would be our preferred alternative, even though it's a little bit more costly than the other two alternatives.

The next thing we have to do is go into the two modifying criteria, state and community acceptance. In this case, we have been working with the state all along in the process, and they agree

with us that alternative 2 is our -- should be our proposed preferred alternative.

The next thing is community acceptance. And that's why we are here this evening. We are looking for feedback from you, and comments on not only alternative 2, but also alternatives 3 and 4 and our decision making process in general.

Now, in summary, we chose alternative 2 because it does not produce a mixed waste and also because it uses a proven, reliable technology that we can readily design and implement.

And finally, to give you an idea of what's coming up next, the comment period ends March 13. What we will do at that time is take your comments and use them to help make our final decision.

Now, this decision will be placed into a record of decision, and that record will include the final action, the legal requirements we have to make under that action, and also describe how we used your comments in our decision making process.

Assuming that be the preferred alternative, or one of the pump and treat alternatives is selected, we will complete our remedial design next spring, and we are looking at

actually turning on the pump in the summer of '93. And that concludes my presentation. Thank you.

MS. GREEN: Thank you, Jerry. With that, does anybody have any questions that could clarify either their understanding of the presentation or clarify their understanding of other aspects of the project or the other -- the preferred alternative or the other alternatives?

(No response.)

MS. GREEN: Jerry must have done a very good job, then.

Q. Did you say that you would be pumping from more than just the injection well when you are pumping the water back?

MR. ZIMMERLE: That's right. I can't give you a specific number of other wells right now. There are, I think, four to five that would be suitable candidates to pump on; and that we haven't made the final decision on which wells we will do that on. Anything that we can do that will give us --

Let's see, let me try to shorten the answer. What's going to happen is that we are going to try some different wells. If we see some positive benefit, we will keep using those wells. If not, we

will go on to something else.

Q. How many test wells have we drilled?

MR. ZIMMERLE: We started off with about 17 existing wells within a two or three-mile radius of the Test Area North. And in the last two years, we have put nine wells in each year, so that gets us close to 35, 36 wells.

MS. GREEN: Can the court reporter hear adequately without the microphone?

COURT REPORTER: So far.

Q. I would like to know a little bit more about strontium. It's just something I don't know a lot about. For instance, plutonium can be held in my hand, supposedly won't penetrate my skin, but I don't want to breathe even the smallest particle of it. Can you tell me something about the physical particles of strontium?

MR. ZIMMERLE: Strontium is a beta-emitter, so the particles are a bit larger. Now you will strain my comprehension of strontium. It decays fairly quickly. Within 100 years, it will drop by a factor of eight. I believe beta-emitters are --

MS. GREEN: Being a beta-emitter, the skin does stop the radioactivity.

MR. ZIMMERLE: It does more damage to skin

versus -- If you'd like more details than that, I will have to go back to my cheat sheets, and I will be happy to supply you with information.

Q. My next question dealt with the slide you had on what all of them had in common. You had the first filter system that took out the sand. You said it would settle out the solids. Why won't it settle out the lead and strontium, as well?

MR. ZIMMERLE: They are in a soluble form, or dissolved in the water itself. They are not large particles at that point.

Q. Thank you.

MS. GREEN: Any other questions? Yes.

Q. That does lead to my question. In the preferred alternative, what happens to the lead if the organics go up and then you end up with radioactive waste? Where is the lead left?

MR. ZIMMERLE: The lead continues with the strontium and goes into the ion exchange column, and it's removed in the ion exchange.

MS. GREEN: Yes, sir.

Q. When they made the atom bomb, they used a filter made out of lead. What about cleaning it with a filter made out of the metal palladium, p-a-l-l-a-d-i-u-m? If you go to the library, they

speak about how you can take palladium and separate -- it has a great tendency to grab a hydrogen atom and let the oxygen atoms go on.

MR. ZIMMERLE: With high concentrations, you can do that. You can actually recover the lead. But we don't have concentrations at that level.

Q. Thank you. Where is the present day radioactive waste going? From the site per se.

MS. GREEN: Active operations at the INEL that produce low level waste, that waste is disposed on the INEL at the radioactive waste management complex. It's in the southwest corner of the INEL. Reuel, is it shown on the map back there?

MR. SMITH: Yes. It's this dot right down here in the southwest corner.

MS. GREEN: Yes, sir.

Q. Will you pump these wells until the water reaches drinking water standards, or do you have some background that you are going to pump to?

MR. ZIMMERLE: We are going to pump them for about two years, until a remedial investigation is finished. At that point, we will evaluate how well the interim action is doing. But the final cleanup levels for the aquifer will be determined under that record of decision for the remedial

investigation.

MS. GREEN: In our next presentation, Dan will talk to you about that big, broader study and show you how the pumping on the interim action will feed into the broader study. So he will explain that a little bit more clearly.

Q. You said, in alternative number 2, the carbon filter, you would hopefully be able to recycle and reuse. Does that mean the technology is not presently available or --

MR. ZIMMERLE: We haven't decided on whether we will recycle it or not. I am leaving my options open. I prefer to recycle it.

Q. The technology is available?

MR. ZIMMERLE: It's -- carbon adsorption of organics is fairly standard throughout the country. I couldn't name you a facility, but there are facilities available to recycle carbon.

MS. GREEN: Can you tell us, Jerry, is it a question of if it's a high enough concentration or if there aren't other contaminants? Do we know what the criteria for -- if it's possible to recycle or not?

MR. ZIMMERLE: It will be possible to recycle it. I prefer to do it that way. We just

haven't set it down in stone that it will be done that way.

Q. I have an arbitrary question. Envision the situation where you are pumping this well. We know the water -- or you indicate the water moves to the southwest. You are going to have to pull water from the southwest, you will have to pull it to the northeast.

Envision the possibility where the infiltration of water into the aquifer is coming in more rapidly than you can pump, or even if you pump to the ability of the infiltration, you are not going to pull that water back upstream under a situation like that.

MR. ZIMMERLE: Under the interim action, we are not trying to pull the contaminant plume back, that mile and a half long contaminant plume. What we want to do is concentrate in on that quarter mile to half mile boundary.

You are right in terms of the Snake River Plain, the water moves to the southwest. But at TAN, it moves southeast and, at some point to the south of that, it bends back and follows the rest of the Snake River Plain aquifer. I believe that's because it's a recharge and it gets flow from the mountains to the

northwest. Northwest of the Test Area North.

MS. GREEN: But you are correct in that we would not be attempting to pull large amounts of water against the gradient of the aquifer. Any other questions?

Q. The pond that you put the clean water in, as I remember from the brochure, you will be putting clean water into a clean area. But that clean area is separated from a contaminated area only by a berm, is that right?

MR. ZIMMERLE: That's right.

Q. Is there contaminated soil under the contaminated pond that would be pushed down -- would the contamination be pushed down further by the clean water?

MR. ZIMMERLE: No. We have done some extensive sampling on the contaminated area of the pond, and the contamination stops very quickly as you go deeper into the soil. We felt that with this berm, it will be back far enough away from this contaminated area that the water will go down and not have any effect on the contaminated zone.

We do have two monitoring wells on the edges of the contaminated zone, and those are -- we have used those for monitoring just to make sure we

are not running into a problem.

MS. GREEN: Any other questions?

(No response.)

MS. GREEN: If there are no more questions of clarification, then we will begin the portion of the meeting that's designed for you to provide your oral comments to DOE, EPA and the state regarding the proposed plan to reduce contamination near the injection well and surrounding groundwater at Test Area North.

So if you would like, again, if you would like your oral comment considered as part of the final decision, then at this time you will need to step forward to the microphone, state your name and address, and provide that comment for the record.

If you don't use that opportunity to provide your comment orally, then in order to be considered, you will have to submit it in writing. We will accept comments written on anything, but we have provided at the back of the room a blue form that says "TAN Injection Interim Action." If you would like to use this form to record your comments and leave it in the -- on the black in-basket at the back of the room, you are welcome to do so.

If you don't do that, the close of the

comment period is March 13th and we will need to receive your written comments by that date in order for them to be officially considered in the record of decision for this interim action.

Again, during this portion of the meeting, we will listen to your comments; but in general, we will not be responding to them during this portion of this session.

Reuel, can you tell me how many people have signed up to provide oral comments on the TAN injection well interim action?

MR. SMITH: I think there's one individual that's indicated that.

MS. GREEN: Is there anybody in addition to the one individual who signed up who would also like to provide oral comments on this plan?

(No response.)

MS. GREEN: I'd like to ask the one individual who signed up to give oral comments to please step forward and do so at this time.

(No response.)

MS. GREEN: If this person is still in the room.

MR. SMITH: I may have misinterpreted the mark on the sheet, too. I don't mean to put

pressure on anybody.

MS. GREEN: Well, if it's truly the case that nobody present wishes to provide oral comments on this plan at this time, then again for the record, I'd like to remind you that after this evening, in order for your comments to be officially addressed in the cleanup decision and responded to in the responsiveness summary, you will need to provide them in writing to the Department of Energy on or before March 13th.

With that, I'd just like to take a very quick break, five minutes, so that we can get set up for the last topic on tonight's agenda, the remedial investigation and feasibility study for the groundwater contamination at TAN. So we will reconvene at 8:30. Thank you very much.

(Whereupon, the public meeting ended.)

REPORTER'S CERTIFICATE

STATE OF IDAHO)
) SS
County of Twin Falls)

I, LINDA LEDBETTER, a Notary Public and Certified Shorthand Reporter in and for the state of Idaho, do hereby certify:

That the foregoing meeting was taken down by me in shorthand at the time and place therein named, and thereafter reduced to print under my direction; and that the foregoing transcript contains a full, true and verbatim record of the said meeting.

I further certify that I have no interest in the event of the action.

WITNESS my hand and seal this 27th day of February, 1992.

Linda Ledbetter
Idaho CSR Number 26

My commission expires 10/12/94